On the Different Methods of Constructing a Catalogue of Fixed Stars. *By* J. Pond, *Esq. F.R.S. Astronomer Royal.* Read May 21, 1818. [*Phil. Trans.* 1818, *p.* 405.]

The method hitherto adopted in the Royal Observatory for constructing a catalogue of stars, either in declination or right ascension, has been to take some one star as a point of departure, and thus to determine the position of the rest by direct comparison. The declinations were determined by direct comparison with γ Draconis, and α Aquilæ was chosen as the common term of comparison in right ascension. In observations with the transit instrument, this mode of proceeding is highly objectionable; for every result is subject to a double error,—that committed in the observation of α Aquilæ, and that in the observation of the star itself. Besides which, if the observation of α Aquilæ be omitted, then the other observations become useless. Hence, although extreme accuracy was ultimately thus obtained by the late Astronomer Royal, the method was tedious and objectionable.

The method which Mr. Pond proposes to substitute, and which he describes in this paper, has the advantage of affording, in a single year, a catalogue equally accurate with one formerly obtained in three, and equally applicable to the mural circle and transit instrument. No particular star is in either case assumed as a point of departure in preference to the rest. On the contrary, every star is in its turn assumed as a point of reference to the others. It is thus endeavoured, in the first instance, to establish their relative distances from each other, or from the equator or meridian, leaving the choice and determination of some common point of departure as a subject for future consideration. The principles of proceeding applicable to both instruments are then detailed at length, and the striking coincidence of the author's catalogue, and that of the late Dr. Maskelyne, adverted to.

In respect to the accuracy of the results afforded by the new transit instrument, Mr. Pond thinks that 120 observations enable him to define the place of a fixed star to one tenth of a second of a degree.

A Description of the Teeth of the Delphinus Gangeticus. *By Sir* Everard Home, *Bart. V.P.R.S.* Read June 4, 1818. [*Phil. Trans.* 1818, *p.* 417.]

In the 7th volume of the Asiatic Researches, published in 1781, Dr. Roxburgh describes the *Delphinus Gangeticus*, but gives a very imperfect account of its teeth; nor is any detailed account of them given in any other work. As the jaws and teeth of this species of Delphinus form its most remarkable character, Sir Everard thinks the subject of sufficient interest to the comparative anatomist and geologist, to be laid before this Society.

These teeth, as in the whole tribe, generally have the rudiments in the gums, from which the teeth grow in both directions; upwards